

Economic Risk Factors and Commercial Real Estate Returns

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Research linking the macroeconomy to commercial real estate returns is extremely limited, and it is primarily focused on the question of whether real estate returns are "sensitive" to various economic events or factors, especially unanticipated inflation. These sensitivities are estimated by regressing *ex post* real estate returns on a set of explanatory variables. Sensitivity --or risk "exposure"-- is measured by each explanatory variable's "beta" coefficient. Statistical significance of a coefficient in these *ex post* return regressions indicates whether real estate returns are exposed to a macroeconomic risk factor, but it does not tell us whether a source of risk is "priced" *ex ante* (i.e., bears a premium), or whether the factor's influence changes over time.

Financial theory distinguishes between diversifiable (nonsystematic) and nondiversifiable (systematic) risk. Diversifiable risk can be subdivided into parts attributable to property type (office, industrial, etc.) or geographic region (West, Midwest, etc.), with the balance of diversifiable risk being distinct to the individual property. Examples of property-specific risk include ineffective management and the changing value of the property's location. Financial theory also suggests that nonsystematic risk across properties, property types, and geographic regions should cancel out in a well-diversified portfolio. Thus, investors will not be compensated in the form of a higher expected return for exposure to nonsystematic risk. If an economic risk factor has a systematic influence on asset returns, investors can expect to earn a premium, relative to riskless Treasury securities, for bearing the risk.

This study identifies the fundamental macroeconomic drivers or "state variables" that systematically affect real estate returns. The study covers the 1978-1994 time period. Historical real estate return portfolios are formed using both appraisal-based returns and stock market-based REIT returns. In particular, we use: (1) stock market return data on REITs and other real estate related industries from the Center for Research in Security Prices; (2) unsmoothed appraisal-based returns by geographical division from the National Council of Real Estate Investment Fiduciaries (NCREIF); (3) unsmoothed NCREIF return data disaggregated both by region and property type; and (4) a combination of regional NCREIF data and regional capitalization rate data from the American Council of Life Insurance Companies. In addition to the five macroeconomic risk factors that have been found to be important in the pricing of common stocks, other macroeconomic risk factors, such as the real Treasury bill and the growth rate of real per capita consumption, are employed as risk factors.

Our most important finding is that the growth rate in real per capita consumption and the real T-bill rate are systematic risk factors in commercial real estate markets --regardless of what real estate return series we use as the left-hand variable and regardless of the specification of the regression equation. Changes in the slope of the yield curve and unexpected inflation are also significant in several specifications of the model.

The finding of a consistently significant (*ex ante*) risk premium on per capita consumption differs from previous studies of stock and bond returns which have found mixed evidence on the role of consumption in explaining *ex ante* returns. However, this result is consistent with Geltner's (1989) finding that real estate returns are sensitive to national consumption. The finding of a significant premium on consumption also has important ramifications for the vast literature that has examined the (risk-adjusted) performance of real estate, for it suggests that prior findings of significant abnormal returns (either positive or negative) that have ignored consumption are potentially biased toward finding abnormal real estate returns because they have omitted an important explanatory variable. The results also have important implications for dynamic asset allocation strategies that involve the predictability of real estate returns using economic data.